



IN THE CLAIMS

Please amend the claims as follows:

Claim 1 (currently amended): An etching method for etching a silicon-containing oxide according to a pattern shape of a mask by using a gaseous mixture of gas containing carbon and fluorine, oxygen gas and inert gas,

wherein recesses are formed in the silicon-containing oxide by an etching carried out under a condition that a ratio of a total flow rate of the gas containing carbon and fluorine and the oxygen gas to a flow rate of the inert gas ((a flow rate of the gas containing carbon and fluorine + a flow rate of the oxygen gas)/a flow rate of the inert gas) is ~~smaller than or equal to 0.02~~ smaller than 0.015, the recesses having approximately planar bottom portions formed of the silicon-containing oxide and approximately vertical sidewall portions formed of the silicon-containing oxide, and angled portions formed by the sidewall portions and the bottom portions being substantially right angled, and

a formation of narrow groove shaped microtrenches is suppressed at the bottom portion sides of the angled portions.

Claim 2 (canceled)

Claim 3 (original): The etching method of claim 1, wherein the ratio of the total flow rate of the gas containing carbon and fluorine and the oxygen gas to the flow rate of the inert gas ((the flow rate of the gas containing carbon and fluorine + the flow rate of the oxygen gas)/the flow rate of the inert gas) is greater than or equal to 0.003.

Claim 4 (original): The etching method of claim 1, wherein the inert gas is Ar.

Claim 5 (original): The etching method of claim 4, wherein the gas containing carbon and fluorine is C₅F₈.

Claim 6 (original): The etching method of claim 1, wherein the etching is performed by mounting an object to be processed having the silicon-containing oxide on a lower electrode of an etching apparatus in which an upper electrode and the lower electrode are disposed to face each other and then applying a high frequency power to the lower electrode.

Claim 7 (original): The etching method of claim 6, wherein the silicon-containing oxide is a silicon oxide film.

Claim 8 (original): The etching method of claim 6, wherein the etching is performed while a magnetic field is formed approximately perpendicular to a high frequency electric field formed by the high frequency power.

Claim 9 (currently amended): An etching method for etching a silicon-containing oxide according to a pattern shape of a mask by using a gaseous mixture of gas containing carbon and fluorine, oxygen gas and inert gas, the etching method comprising:

a first step of ~~performing an etching~~ etching the silicon-containing oxide by setting a ratio of a total flow rate of the gas containing carbon and fluorine and the oxygen gas to a flow rate of the inert gas ((a flow rate of the gas containing carbon and fluorine + a flow rate of the oxygen gas)/a flow rate of the inert gas) as a first value; and

a second step of ~~performing an etching~~ etching the silicon-containing oxide by setting the ratio of the total flow rate of the gas containing carbon and fluorine and the oxygen gas to the flow rate of the inert gas ((the flow rate of the gas containing carbon and fluorine + the flow rate of the oxygen gas)/the flow rate of the inert gas) as a second value smaller than the first value,

wherein recesses are formed in the silicon-containing oxide by ~~an etching~~ the first and the second steps of etching, the recesses having approximately planar bottom portions formed of the silicon-containing oxide and approximately vertical sidewall portions formed of the

silicon-containing oxide, and angled portions formed by the sidewall portions and the bottom portions being substantially right angled, and

a formation of narrow groove shaped microtrenches is suppressed at the bottom portion sides of the angled portions.

Claim 10 (currently amended): ~~The etching method of claim 9,~~ An etching method for etching a silicon-containing oxide according to a pattern shape of a mask by using a gaseous mixture of gas containing carbon and fluorine, oxygen gas and inert gas, the etching method comprising:

a first step of etching the silicon-containing oxide by setting a ratio of a total flow rate of the gas containing carbon and fluorine and the oxygen gas to a flow rate of the inert gas ((a flow rate of the gas containing carbon and fluorine + a flow rate of the oxygen gas)/a flow rate of the inert gas) as a first value; and

a second step of etching the silicon-containing oxide by setting the ratio of the total flow rate of the gas containing carbon and fluorine and the oxygen gas to the flow rate of the inert gas ((the flow rate of the gas containing carbon and fluorine + the flow rate of the oxygen gas)/the flow rate of the inert gas) as a second value smaller than the first value,

wherein recesses are formed in the silicon-containing oxide by the first and the second steps of etching, the recesses having approximately planar bottom portions formed of the silicon-containing oxide and approximately vertical sidewall portions formed of the silicon-containing oxide, and angled portions formed by the sidewall portions and the bottom portions being substantially right angled, and a formation of narrow groove shaped microtrenches is suppressed at the bottom portion sides of the angled portions, and wherein the first value is greater than 0.02 and the second value is smaller than or equal to 0.02.

Claim 11 (original): The etching method of claim 9, wherein the inert gas is Ar.

Claim 12 (original): The etching method of claim 9, wherein the gas containing carbon and fluorine is C_5F_8 .

Claims 13-20 (canceled)

Claim 21 (previously presented): The etching method of claim 1, wherein a microtrench coefficient represented by a ratio of an etching depth of the silicon-containing oxide of the angled portions to an etching depth of the silicon-containing oxide other than the angled portions of the recesses is 1.10 to 1.00.

Claim 22 (previously presented): The etching method of claim 10, wherein a microtrench coefficient represented by a ratio of an etching depth of the silicon-containing oxide of the angled portions to an etching depth of the silicon-containing oxide other than the angled portions of the recesses is 1.10 to 1.00.

Claim 23 (canceled)

Claim 24 (new): The etching method of claim 10, wherein the inert gas is Ar.

Claim 25 (new): The etching method of claim 10, wherein the gas containing carbon and fluorine is C_5F_8 .